

## **The Invention**

The invention relates to a corrosion inhibiting composition for use in inhibiting the corrosion of metallic surfaces exposed to water comprising a mixture of a fatty acid ester of a sorbitan ester of a saturated fatty acid (see specification at page 4, paragraph 2 for support), and a polyethylene glycol ester. These compositions are useful in inhibiting the corrosion of metals such as steel, copper, and brass, which are exposed to water or other industrial fluids.

The examples illustrate that the combination of esters reduces corrosion in steel, copper, and other metallic surfaces, and that this result is unexpected, or synergistic, in view of the limited inhibition effect of the components alone.

The invention also relates to a method of reducing corrosion on metallic surfaces exposed to water in an industrial, commercial or institutional system, which comprises adding a corrosion inhibiting amount of the composition to the water or steam at an injection point, such that the corrosion inhibiting composition comes into contact with the metal surface.

## **DISCUSSION OF EXAMINER'S OFFICE ACTION**

### **Claim Rejections - 35 USC § 112**

The following is a quotation of the second paragraph of 35 U.S.C. §112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the Applicants regards as their invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The "weight ratio of (a) to (b) is from about 1:1 to about 1:10" in lines 1-2 of claim 4 is broader than the ratio of "(a) to (b) is 1: 1 to 1: 10" of claim 1 and therefore is indefinite.

### **Applicants' response**

Claim 4 was amended to correct this mistake.

Claims 5-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 5 (and its

dependent claims) depends on claim 4 that is indefinite and therefore is indefinite for the same reason. The phrase "such fluid" in line 2 of claim 5 is indefinite and may be overcome with the substitution of the following phrase ---said fluid---

#### **Applicants' response**

Claim 5 was amended to correct this mistake.

Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 2 of claim 7 the phrase "based on component (s)" is indefinite and confusing because it is unclear what is the intended component(s). Clarification to the record is required.

#### **Applicants' response**

Claim 7 was amended to correct this mistake.

#### **Claim Rejections - 35 USC § 102 (b)**

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102 (b) as being clearly anticipated by Burlew 6,042,750. Burlew teaches a method and composition for inhibiting corrosion comprising (a) fatty acid ester and (b) polyethylene glycol esters, note example 1, claim 1, column 1 lines 4-8, column 1, line 65 to column 2, lines 1-14, column 2, line 55 to column 2, lines 1-5, column 3, lines 30-37 that anticipates the instant claims.

#### **Applicants' Response**

The fatty acid component of Applicants' composition is now limited to fatty acid esters of a sorbitan ester and a saturated fatty acid.

Burlew relates to compositions for inhibiting corrosion of metal comprising at least one tetraalkylammonium halide, at least one alkyldiamine, at least one polyethylene aliphatic

hydrocarbon amine, at least one polyethylene fatty acid ester, at least one aliphatic hydrocarbon hydroxyalkyl imidazoline, at least one polyethylene glycol aliphatic ester, and at least one trialkanolamine, and at least one amine oxyalkylate.

Burlew indicates that the polyoxyethylene fatty acid ester is typically an ester of polyoxyethylene sorbitol with one or more fatty acids. Examples of such polyoxyalkylene fatty acid esters, disclosed in Burlew, include polyoxyethylene sorbitan monolaurate, polyoxyethylene sorbitan monooleate, polyoxyethylene sorbitan dilaurate, polyoxyethylene sorbitan dipalmitate, polyoxyethylene sorbitan trilaurate, polyoxyethylene sorbitan trioleate, polyoxyethylene sorbitan, trimyristate, polyoxyethylene sorbitan tripalmitate, polyoxyethylene sorbitan tetraoleate, polyoxyethylene sorbitan tetrastearate, polyoxyethylene sorbitan tetrapalmitate, and mixtures thereof. Polyoxyethylene sorbitan esters derived from the reaction of polyoxyethylene sorbitol with a mixture of fatty acids are also contemplated. The above mentioned polyoxyalkylene fatty acid esters are for exemplification purposes only and it is understood that other polyoxyalkylene fatty acid esters are contemplated. Alkamuls PSTO-20, a polyoxyethylene sorbitan trioleate available from Rhone-Poulenc has been found to particularly useful in the present invention. See column 2, line 55- column 3, line 7.

The only example in Burlew uses polyoxyethylene sorbitan trioleate as the polyoxyethylene fatty acid.

Applicants' compositions do not contain a polyoxyethylene fatty acid ester. Instead they contain a fatty acid ester of a sorbitan ester and a saturated fatty acid. These fatty acids are not modified with polyoxyethylene moieties. Furthermore, polyoxyethylene fatty acid esters are not effective substitutes for the fatty acid esters of a sorbitan ester and a saturated fatty acid used in Applicants' compositions. They are too hydrophilic and produce more foam, as the Control, Comparison D, and Example 8 suggest at pages 8-9 of Applicants' specification.

## CONCLUSION

In view of the differences between Applicants' invention and the prior art, Applicants submit that the claims are not anticipated by Burlew or obvious in view of Burlew. Applicants submit that the application is now in condition for allowance and respectfully request a notice to this effect. If the Examiner believes further explanation of Applicants' position is needed, Applicants' attorney will discuss this matter over the telephone or visit the Examiner personally if this may be useful.

Respectfully submitted,



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